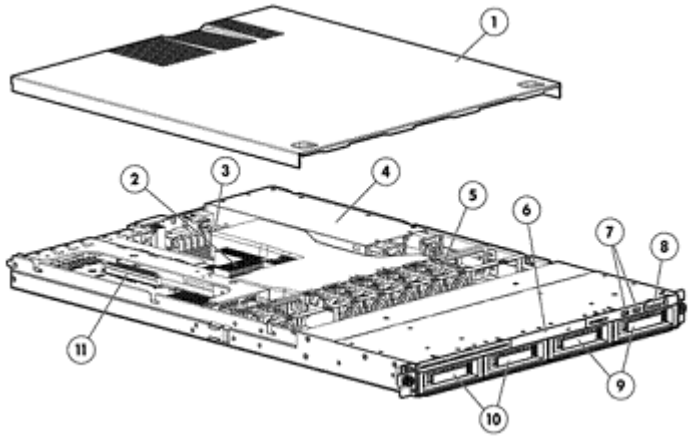
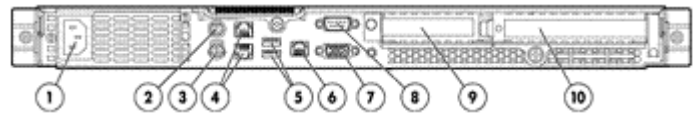
Overview

Hot Plug SAS/SATA and Non-Hot Plug SATA Models





Front View:

1. Access panel
2. Quad-Core Intel® Xeon® 5400 series processors (supports up to two)
3. Eight PC2-5300 (DDR2-667) fully buffered DIMM memory slots
4. Power supply (650 Watts)
5. System fans
6. Optional CD-RW or DVD-ROM drive
7. Two USB ports
8. Power on/off & system LEDs
9. Optional 3rd and 4th 3.5" Non-Hot plug SATA or hot plug SAS/SATA hard drive bays
10. Standard 1st and 2nd 3.5" Non-Hot plug SATA or hot plug SAS/SATA hard drive bays
11. Expansion Slots:
    Non-Hot Plug Models – Two available x16 PCI-Express Gen2 slots
    Hot Plug Models – One available x16 PCI-Express slot Gen2 slot

Rear View:

1. Power Supply Cable Socket
2. PS/2 Mouse Port
3. PS/2 Keyboard Port
4. Two GbE LAN ports for NIC 1 and NIC 2 (RJ-45)
5. Rear USB ports
6. LO100i 10/100 Mbps LAN port for IPMI management (RJ-45)
7. Video Port
8. Serial Port
9. Low-Profile PCI Express x8/PCI-X riser board slot cover
10. Standard height/full-height PCI Express x16/PCI-X riser board

What's New

- Support for up to two Intel® Quad-Core L5420 processor
- Support for SATA Hot Plug/Non-Hot Plug Midline and Entry Hard Drives
- Low Power and PC2-6400 (DDR2-800) memory options
- HP NVIDIA Quadra FX1700 and FX3700 Graphics Cards

At A Glance

The HP ProLiant DL160 G5 server is an affordable 1U, dual processor capable server equipped with essential performance features

Overview

that provide customers with a platform to design a fully optimized solution. It is ideal for general purpose and high performance computing.

- Processors:
  - Supports up to two Intel® Quad-Core 5400 or Dual-Core 5200 sequence processors
    - Quad-Core Intel® Xeon® processors 5400 sequence with 12 MB Level 2 cache
    - Dual-Core Intel® Xeon® processors 5200 sequence with 6 MB Level 2 cache
  - Intel® 5400 Chipset
- Memory:
  - Supports up to 64 GB PC2-5300 fully buffered DIMMs (DDR2-667) with Advanced ECC
- Internal Drive Support:
  - Support for up to four 3.5" Non-Hot plug serial ATA (SATA) hard drives or;
  - Support for up to four 3.5" Hot plug Serial Attached SCSI (SAS) or SATA hard drives.
  - NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.
  - Internal storage capacity of up to 4.0TB (4 x 1TB Hot Plug 3.5" SATA), 3.0TB (4 x 750GB Non-Hot Plug SATA) or 4.0TB (4 x 1TB Hot Plug 3.5" SAS)
- Network Controller:
  - Two embedded NC105i PCIe Gigabit Server Adapters
- Storage Controllers:
  - Non-Hot Plug SATA Models: HP Embedded SATA RAID Controller
  - Hot Plug SAS/SATA Models : HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1
- Expansion Slots:
  - Non-Hot Plug Models: Two available PCI Express 2.0 slots:
    - Slot 1: full-length/full-height PCI-Express 2.0 x16
    - Slot 2: low-profile/half-height PCI-Express 2.0 x16
  - Hot Plug Models: One available PCI-Express slot:
    - Slot 1: full-length/full-height PCI-Express 2.0 x16
    - Slot 2: low-profile/half-height PCI-X slot populated by the SAS/SATA storage controller
- Management:
  - HP Lights Out 100i Advanced and Select Remote Management with new licensed key activated upgrades for Virtual KVM and virtual media support. LO100i management support for the DL160 G5 includes:
  - IPMI 2.0 & SMASH CLP support
  - ROM Setup Utility
  - Improvements to virtual media with the addition of USB 2.0 drives and protocol support for much faster transfer speeds and DVD-ROM support plus simplified virtual media (floppy and CD with no FTTP server requirements)
  - Enhanced browser interface and embedded KVM over IP provides OS-independent remote graphical console
  - New Licenses that have EULAs with one-time, optional, license activation key to allow for easy, future upgrades which will be chargeable when they become available.
- USB Ports:
  - Five USB ports (two front, one internal, two rear)
- Optical Drive:
  - Support for one (optional): DVD-ROM, DVD/CD RW
- Power Supply:
  - 650W Power Supply (Non-Hot Plug, Autoswitching)
  - Optional high-efficiency model
    - NOTE: Optional high-efficiency model requires the purchase of HP Power Supply Backplane (453652-B21)
- Additional Features:
  - Support for:
    - NVIDIA Quadro FX3700 512MB PCIe x 16 graphics card
    - NVIDIA Quadro FX1700 512MB PCIe x 16 graphics card
- Form Factor:

Overview

- Rack (1U)
- Fixed mounting rails included with all models

- Deployment/Serviceability:
  - Tool-less access to all system components for easy in rack serviceability
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one year warranty
  - NOTE: Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html.

Standard Features

NOTE: For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB) Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details. Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB) Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz FSB) Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB) Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB) **Dual-Core Processors** Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB) Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, TDP, 1333MHz FSB) NOTE: Available through Configure To Order only. See Factory Integration Models section for more details.		
Upgradeability	Upgradeable to two processors		
Chipset	Intel® 5400 Chipset		
Cache Memory	12 MB (2 x 6 MB) Level 2 cache (5400 sequence) 6 MB (1 x 6 MB) Level 2 cache (5200 sequence)		
Memory Protection	Advanced ECC capabilities		
Memory	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667)	
	Standard	1 GB	(2 x 512 MB)
	Maximum	64 GB	(8 x 8 GB)
Network Controller	Two embedded NC105i PCIe Gigabit Server Adapters		

Standard Features

Expansion Slots #	Technology	Bus Width	Connector Width*	Bus Number*	Device No.**	Form Factor	Notes
1	PCI-Express 2.0	x16	x16	1	0	Full length, full height	3.3 volts
1	PCI-X***	64-bit	N/A	5	1	Full length, full height	3.3 volts
2	PCI-Express 2.0	x16	x16	6	3	Low Profile	3.3 volts
2	PCI-X***	64-bit	N/A	5	1	Low Profile	3.3 volts

NOTE: All slots can accept universal keyed PCI cards

* Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

*** PCI-X bus speed will be 133MHz when only one PCI-X card is installed. It will be 100MHz when both slots have PCI-X cards installed.

Storage Controller	Non-Hot Plug SATA Models	HP Embedded SATA RAID Controller (integrated into the south-bridge) supporting SW RAID 0,1
	Hot Plug SATA/SAS Models	HP SC40Ge HBA with RAID 0, 1

NOTE: A diskette drive, USB floppy drive key or virtual FDD using LO100 Select or Advanced Pack is needed to install storage controller drivers during a Windows operating system installation from a CD.

Storage	**Optical Drives:**	
	DVD-ROM	8x IDE (ATAPI) DVD-ROM drive, slim (optional)
	DVD/CD RW	24x IDE (ATAPI) CD-ROM drive (optional)
	Diskette Drives	Via USB only
	Drive Bays:	
	Non-Hot Plug SATA	Up to 4 Non-hot plug SATA 3.5" drives
	Hot Plug SATA/SAS	Up to 4 Hot plug SAS/SATA 3.5" drives

Maximum Internal Storage	Non-Hot Plug SATA	3.0TB	4 x 750GB
	Hot Plug SATA	4.0TB	4 x 1TB
	Hot Plug SAS	4.0TB	4 x 1TB

Standard Features

Interfaces	Parallel	None
	Network RJ-45(Ethernet)	2 10/100/1000 NIC ports (plus 1 dedicated for the HP ProLiant Lights Out 100i Remote Management)
	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	USB	5 (two front, one internal, two rear) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.
Graphics	32MB shared supporting 1600x1200x16M resolution	
Form Factor	Rack (1U), (1.75 in/4.45 cm)	
Server Management Stand Alone Software Product and ProLiant Essentials	Lights-Out 100i	HP Lights-Out 100i Remote Management delivers affordable, entry level remote management capabilities for HP ProLiant 100 Series servers with embedded LO100i. It allows customers or their service providers to remotely manage ProLiant 100 Series servers remotely over a LAN or the Internet and consists of the following: • LO100i Standard is embedded remote management and provides basic remote control via telnet, browser, and IPMI 2.0 and SMASH • LO100i Select Pack License are upgrades for essential, secure, remote control, serial console and virtual media • LO100i Advanced Pack License are upgrades for all the features of LO100i Select plus Virtual KVM (graphical hardware-based, remote console) NOTE: Flexible and volume quantity (AKA) license kits are available for both the Lights-Out 100i Select and Lights-Out 100 Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products' QuickSpecs at this link for more information: http://h18004.www1.hp.com/products/servers/management/remotemgmt.html.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install using images and scripted profiles. For more information, visit: http://www.hp.com/go/rdp. NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to: http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

Standard Features

	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
Core Infrastructure Management	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq, software and latest drivers	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through software and drivers download pages website at: http://www.hp.com/go/support.
Industry Standard Compliance	ACPI V2.0 Compliant PCI 2.2 Compliant PXE Support WOL Support Microsoft® Logo certifications IPMI 2.0, SMASH CLP compliant	
Manageability	HP Lights-Out 100i Standard provides the following OS-independent remote control capabilities: • Virtual power • System event log access • System health • Remote serial console (serial redirection) • Browser, Telnet access • SMASH-CLP compliant • IPMI 2.0 compliant HP Lights-Out 100i Select Pack provides license key activated upgrades to the following: • Virtual media (Floppy and CD) • Secure Socket Layer Encryption • Secure Shell Encryption HP Lights-Out 100i Advanced Pack provides license key activated upgrades to the following: • Virtual KVM (KVM over IP functionality embedded on the system board) plus all of the LO100i Select Pack features above.	
Security	Power-on password Setup password	

Standard Features

Server Power Cords	One 6' Highline (IEC-IEC) power cord ships standard NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately. If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html.
Power Supply	650 Watts, auto-switching, PFC (Power Factor Correcting) NOTE: Factory upgradeable to high-efficiency (HE) power supply for lower TCO
System Fans	6 system fans ship standard; Non-hot plug, Non-redundant
OS Support	Microsoft Windows 2003 and Microsoft Windows 2003/R2 Standard Edition (32-bit) Microsoft Windows 2003 and Microsoft Windows 2003/R2 Enterprise Edition (32-bit) Microsoft Windows 2003 and Microsoft Windows 2003/R2 Web Edition (32-bit) Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Standard Edition (64-bit) Microsoft Windows 2003 and Microsoft Windows 2003/R2 for Extended Systems Enterprise Edition (64-bit) Microsoft Windows Server 2008 Red Hat Enterprise Linux SUSE Linux Enterprise Server Solaris 10 NOTE: For more complete and up-to-date information of all supported OSes for ProLiants, certification information and how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html. NOTE: For an up-to-date listing of the latest software and drivers available for your server, please select your server: http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435.

Standard Features

Rack Airflow Requirements	Rack 10000 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches) CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage. NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: www.hp.com/servers/dl160.
Rack Support	The DL Fixed Rail System supports installation in racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 and HP series), with an adjustment range of 24" - 36". Installation into Telco 2 post, and 4 post, or threaded holes racks requires a 3rd party option kit. For additional information, please visit: www.racksolutions.com.
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Standard Features

Service and Support

HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack Services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service – Simplify ProLiant solution implementation, maintenance and management.

- Support Service – 3 Year, 9x5 Next Business Day coverage, excluding HP holidays only
- Deployment Service – Hardware Installation only

Enhanced Service – Optimize service level to increase IT performance and availability

- Support Service – 3 Year 13x5 Same Business Day, 4-Hour response coverage
- Deployment Service – Installation and Start-up only

Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays.

For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL160 G5 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnects	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D, Rev E and Rev F adapters

Models

Non-Hot Plug Serial ATA (SATA) Models

HP DL160 G5 X5472 Non-Hot Plug SATA, 2GB, (1P) 445198-xx1 HP DL160 G5 E5430 Non-Hot Plug SATA, 1GB, (1P) 445197-xx1 HP DL160 G5 E5405 Non-Hot Plug SATA, 1GB, (1P) 445196-xx1	Processor(s) One of the following depending on model	(1) Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600 MHz FSB) (1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB) (1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB)
	Cache Memory	12MB (2 x 6MB) Level 2 cache
	Memory One of the following depending on model	2GB (2 x 1GB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (X5472 models) 1GB (2 x 512MB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (E5430, E5405 models)
	Network Controller	Two embedded NC105i PCIe Gigabit Server Adapters
	Storage Controller	HP Embedded SATA RAID Controller
	Hard Drive	160GB NHP SATA HDD
	Internal Storage	3.0TB maximum (4 x 750GB Non-Hot plug 3.5" SATA hard drives)
	Optical Drive	Optional CD/DVD-ROM, DVD/CD RW
	Form Factor	Rack (1U)

Hot Plug Serial ATA (SATA)/ Serial Attached SCSI (SAS) Models

HP DL160 G5 X5472 Hot Plug SAS/SATA, 2GB, (1P) 445204-xx1 HP DL160 G5 E5430 Hot Plug SAS/SATA, 1GB, (1P) 445203-xx1 HP DL160 G5 E5405 Hot Plug SAS/SATA 1GB, (1P) 445202-xx1	Processor(s) One of the following depending on model	(1) Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600 MHz FSB) (1) Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB) (1) Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB)
	Cache Memory	12 MB (2 x 6 MB) Level 2 cache
	Memory One of the following depending on model	2 GB (2 x 1 GB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (X5472 models) 1 GB (2 x 512 MB) PC2-5300 DDR2 fully buffered DIMMs (667MHz) with Advanced ECC (E5430, E5405 models)
	Network Controller	Two embedded NC105i PCIe Gigabit Server Adapters
	Storage Controller	HP SC40Ge SAS HBA with RAID
	Hard Drive	None ship standard (up to 4 Hot Plug SATA or SAS drives supported)
	Internal Storage	4.0TB max. (4 x 1TB Hot Plug 3.5" SAS/SATA hard drives)
	Optical Drive	Optional CD/DVD-ROM, DVD/CD RW
	Form Factor	Rack (1U)

Models

Country Code Key	xx = 00	U.S.
	xx = 20	Brazil (P/N 445202-201 only)
	xx = 29	Japan
	xx = 37	APD
	xx = 42	Euro
	xx = AA	PRC

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option is a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Non-Hot Plug Model

HP ProLiant DL160 G5 Non-Hot Plug SATA Rack CTO Chassis 445192-B21

Factory Integrated Model ships with:

Two embedded NC105i PCIe Gigabit Server Adapters (WOL & PXE-capable)
Two available PCI-Express 2 slots:

Slot 1: full-length/full-height
Slot 2: low-profile/half-height
650 Watt Power Supply
One Highline IEC Power Cord
6 Non-Hot Plug Fans
Rack (1U), (1.75 in / 4.45 cm)
Fixed Rails

Hot Plug Model

HP ProLiant DL160 G5 Hot Plug SAS/SATA Rack CTO Chassis 445193-B21

Factory Integrated Model ships with:

Two embedded NC105i PCIe Gigabit Server Adapters (WOL & PXE-capable)
Two available PCI-Express 2 slots:

Slot 1: full-length/full-height
Slot 2: low-profile/half-height
650 Watt Power Supply
One Highline IEC Power Cord
6 Non-Hot Plug Fans
Rack (1U), (1.75 in / 4.45 cm)
Fixed Rails

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	**Quad-Core Processors**	
	Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB), FIO NOTE: If 2 processors are desired, select one 462465-L21 and one 462465-B21.	462465-L21
	Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB), FIO NOTE: If 2 processors are desired, select one 446085-L21 and one 446085-B21.	446085-L21
	Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB), FIO NOTE: If 2 processors are desired, select one 495479-L21 and one 495479-B21.	495479-L21
	Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz FSB), FIO NOTE: If 2 processors are desired, select one 448369-L21 and one 448369-B21.	448369-L21
	Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB), FIO NOTE: If 2 processors are desired, select one 448365-L21 and one 448365-B21.	448365-L21
	Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB), FIO NOTE: If 2 processors are desired, select one 463076-L21 and one 463076-B21.	463076-L21
	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80 W, 1333 MHz FSB), FIO NOTE: If 2 processors are desired, select one 446079-L21 and one 446079-B21.	446079-L21
	Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB), FIO NOTE: If 2 processors are desired, select one 446077-L21 and one 446077-B21.	446077-L21
	Dual-Core Processors	
	Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB) NOTE: If 2 processors are desired, select one 448371-L21 and one 448371-B21.	448371-L21
	Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, 1333MHz FSB), FIO NOTE: If 2 processors are desired, select one 448373-L21 and one 448373-B21.	448373-L21
Memory	1 GB FBD PC2-5300 2 X 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 X 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 X 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 X 4 GB Kit	397415-B21
	Dual Rank	
	4 GB FBD PC2-6400 800MHz 2 x 2 GB Dual Rank Kit	484060-B21
	8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
	Low Power	
	2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21

Configuration Information - Factory Integrated Models

Hard Drive	SATA Non-Hot Plug Midline (MDL) Drives NOTE: A minimum of one hard drive required when purchasing Non-Hot Plug CTO Chassis Model (P/N 445192-B21). NOTE: SATA Non-Hot Plug Hard Drives to be used with Non-Hot Plug CTO Chassis Models Only).	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	SATA Hot Plug Midline (MDL) Drives (To be used with SAS/SATA Hot Plug CTO Chassis Models Only)	
	HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
	HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
	HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
	HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
	SATA Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
	SAS Hot Plug Midline (MDL) Drives (To be used with SAS/SATA Hot Plug CTO Chassis Models Only) NOTE: A SAS HBA or Array Controller is required.	
	HP 1TB 7.2K 3.5" DP SAS MDL HDD	461137-B21
	HP 750GB 7.2K 3.5" DP SAS MDL HDD	461135-B21
	SAS Hot Plug Enterprise (ENT) Drives	
	450GB 3G 15K 3.5" DP SAS ENT HDD	454232-B21
	HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21
	HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21
	HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21
Hot Plug HDD Backplane Option	Hot Plug HDD Backplane 1U 2S Kit NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.	445985-B21

Configuration Information - Factory Integrated Models

Storage Controllers	NOTE: A minimum of one SAS Controller is required when purchasing Hot Plug CTO Chassis Model (P/N 445193-B21).	
	HP SC44Ge Host Bus Adapter	416096-B21
	HP SC40Ge 4 Internal PCIe SAS RAID Half Height HBA, FIO NOTE: Recommended HBA when purchasing Hot Plug CTO Chassis Model (P/N 445193-B21).	449363-B21
	HP Smart Array E500/256MB Controller with Battery, FIO NOTE: Customers can only order one Smart Array E500/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	462105-B21
	HP Smart Array E200/128 BBWC Controller	411508-B21
Power Supply	HP High Efficiency Power Supply Kit, FIO NOTE: Selection of the HE Power Supply Unit will remove the 650 Watt standard power supply and requires the purchase of Power Supply Backplane (p/n 453652-B21).	453650-B21
	HP Power Supply Backplane, FIO NOTE: This backplane must be ordered with the High Efficiency Power Supply (P/N 453650-B2).	453652-B21

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below. Some options may not be available for factory integration. Please contact an HP sales representative for additional information.

Options

Server Management Stand Alone Software Product and ProLiant Essentials	NOTE: Electronic licensing options are available for Insight Control suites and select ProLiant Essentials software products. Please see the appropriate Insight Control and ProLiant Essentials QuickSpecs for additional information.	
	Control	
	Lights-Out 100i Select Pack	
	HP Lights Out 100i Select Pack, No Media, 1-Server License NOTE: Supports HP ProLiant DL 160 G5, DL165 G5 and DL180 G5 servers.	455339-B21
	Lights-Out 100i Advanced Pack	
	HP Lights Out 100i Advanced Pack, No Media, 1-Server License NOTE: Supports HP ProLiant DL 160 G5, DL165 G5 and DL185 G5 servers.	455342-B21
	NOTE: Flexible and volume quantity (AKA) license kits are available for both the Lights-Out 100i Select and Lights-Out 100 Advanced Pack licenses as well as Electronic License To Use (E-LTU). AKA Tracking licenses require a 100 unit minimum forecast at initial contract signing. For these additional part numbers, please refer to each software products' QuickSpecs at this link for more information: http://h18004.www1.hp.com/products/servers/management/remotemgmt.html.	
	DEPLOY	
	Rapid Deployment Pack	
	ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.	452151-B21
	NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html	
	NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to: http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.	

Options

Processor	**Quad-Core Processors**	
	Quad-Core Intel® Xeon® processor X5472 (3.00 GHz, 120W, 1600MHz FSB)	462465-B21
	Quad-Core Intel® Xeon® processor X5460 (3.16 GHz, 120W, 1333MHz FSB) Option Kit	446085-B21
	Quad-Core Intel® Xeon® processor L5420 (2.50 GHz, 50W, 1333MHz FSB)	495479-B21
	Quad-Core Intel® Xeon® processor L5410 (2.33 GHz, 50W, 1333MHz Front Side Bus)	448369-B21
	Quad-Core Intel® Xeon® processor E5472 (3.00 GHz, 80W, 1600MHz FSB) Option Kit	448365-B21
	Quad-Core Intel® Xeon® processor E5462 (2.80 GHz, 80W, 1600MHz FSB)	463076-B21
	Quad-Core Intel® Xeon® processor E5430 (2.66 GHz, 80W, 1333MHz FSB) Option Kit	446079-B21
	Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333MHz FSB) Option Kit	446077-B21
	Dual-Core Processors	
	Dual-Core Intel® Xeon® processor X5272 (3.40 GHz, 80W, 1600MHz FSB)	448371-B21
	Dual-Core Intel® Xeon® processor L5240 (3.00 GHz, 40W, 1333MHz FSB)	448373-B21
Memory	1 GB FBD PC2-5300 2 X 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 X 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 X 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 X 4 GB Kit	397415-B21
	Dual Rank	
	4 GB FBD PC2-6400 2 X 2 GB Dual Rank Kit	484060-B21
	8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21
	16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
	64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
	Low Power	
	2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21
	4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21
	8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21
Hard Drives	**SATA Non-Hot Plug Midline (MDL) Drives** (Non-Hot Plug Models Only)	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	NOTE: When purchasing systems with the 500GB Non-Hot Plug SATA drives, please reference the Configuration Information Section of this QuickSpecs to order via Configuration to Order.	

Options

SATA Hot Plug Midline (MDL) Drives (SAS/SATA Hot Plug Models Only)	
NOTE: A SAS HBA or Array Controller is required.	
HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
NOTE: Server BIOS update is required to support 3G SATA drives when configured with embedded SATA controller.	
SATA Hot Plug Entry (ETY) Drives	
HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
NOTE: Server BIOS update is required to support 3G SATA drives when configured with embedded SATA controller.	
NOTE: SATA hard drives have a 1-year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide) http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
SAS Midline (MDL) Drives 3.5", Hot Plug	
HP 1TB 7.2K 3.5" DP SAS MDL HDD	461137-B21
HP 750GB 7.2K 3.5" DP SAS MDL HDD	461135-B21
SAS Enterprise (ENT) Drives 3.5", Hot Plug	
450GB 3G 15K 3.5" DP SAS ENT HDD	454232-B21
HP 300GB 3G SAS 15K 3.5" SP HDD	431944-B21
HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
HP 146GB 3G SAS 15K 3.5" SP HDD	375872-B21
HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
HP 72GB 3G SAS 15K 3.5" SP HDD	375870-B21
HP 72GB 3G SAS 15K 3.5" DP HDD	384852-B21
NOTE: The purchase of SAS HBA or array controller is required.	
NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: hhttp://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	

Options

Hot Plug HDD Backplane Option	Hot Plug HDD Backplane 1U 2S Kit	445985-B21
	NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.	
Graphic Cards	HP Nvidia Quadro FX1700 512 MB PCI-E 16x Kit	490646-B21
	HP Nvidia FX3700 512 MB PCI-E 16x Kit	490062-B21
Optical Drives	DVD-ROM Drive (optional)	447889-B21
	DVD/CD RW Drive (optional)	447891-B21
Storage Controllers	SAS HBA	
	HP 8 Internal Port SAS HBA with RAID	347786-B21
	NOTE: For use with Hot Plug SAS/SATA models.	
	NOTE: The selection HP 8 Internal Port SAS HBA with RAID requires the purchase of the LowProfile PCI-X Riser Option kit (P/N 452698-B21)	
	HP SC44Ge Host Bus Adapter	416096-B21
	NOTE: PCI-Express SAS HBA.	
	NOTE: Please see the following QuickSpecs additional information: http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (8 Internal Port SAS HBA) http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA)	
	SCSI HBA	
	HP SC11Xe Host Bus Adapter	412911-B21
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	
	SAS Controllers	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.html (Smart Array E200 Controller)	
	Smart Array E500 Controller	
	HP Smart Array E500/256MB Controller	435129-B21
	NOTE: Standard RAID 0,1, 1+0.	
	NOTE: Customers can only order one Smart Array E500/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12700_div/12700_div.html (Smart Array E500 Controller)	
	Smart Array P400 Controller	

Options

	HP Smart Array P400/256 Controller NOTE: Customers can only order one Smart Array P400/256MB Controller and one Battery-backed write cache upgrade (P/N 383280-B21) for the HP ProLiant DL160 G5 server based on battery space.	405132-B21
	HP Smart Array P400/512 Controller with BBWC NOTE: Customers can only order one Smart Array P400/512MB BBWC Controllers for the HP ProLiant DL160 G5 server based on battery space.	411064-B21
	512MB Battery-backed write cache upgrade NOTE: Contains batter and memory module. For Smart Array P400 Controller.	405148-B21
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.html (Smart Array P400 Controller)	
	Smart Array P800 Controller	
	HP Smart Array P800/512 BBWC Controller	381513-B21
	NOTE: Please see the following Controller QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller)	
	Riser Board Kits	
	HP PCI-X Riser Board Kit NOTE: Replaces the standard Full Height PCI Express slot with a Full Height PCI-X slot.	445986-B21
	HP PCI-X L/P Riser Kit NOTE: Replaces the standard Half Height (LP) PCI Express slot with a Half Height (LowProfile) PCI-X slot.	452698-B21
Communications	HP NC110T PCI Express Gigabit Server Adapter	434905-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter NOTE: Supported on a Full Length-Full Height slot only.	394795-B21
	HP NC510C PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	414129-B21
	HP NC510F PCIe 10 Gigabit Server Adapter NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	414126-B21

Options

HPC Specific Options	HP IB 4X DDR PCI-e Dual Port 0 Memory HCA	483513-B21
	HP IB 4X DDR Conn-X PCI-e G2 Dual Port HCA	483514-B21
	HP IB 4X DDR PCI-e DUAL PORT HCA	448397-B21
	NOTE: For HPC interconnect adapters please see the HPC Interconnect section of this QuickSpecs.	
Tape Drives	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	USB Tape Drives	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
	SAS Tape Drives	
	NOTE: For the DL160 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.	
	HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive	DW085A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP ProLiant Ultrium 920 SAS Internal Tape Drive	EH978A
	NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	
	HP StorageWorks 1U SAS Rack-mount kit with one LTO-4 Ultrium 1760	EH946A
	NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.	
	Ultrium Tape Drives	
	HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite)	DW028B
	HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920	EH903A
	HP StorageWorks 3U SCSI Rack-Mount with 1 LTO-4 Ultrium 1840 Tape Drive	EH926A
	NOTE: Please see the HP StorageWorks LTO Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items: http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide) http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html (Worldwide)	
	For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect	
	Rack-Mount Tape Drive Enclosures	
	HP StorageWorks 1U SCSI Rack-Mount kit	A7445B
	NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448, LTO-3 Ultrium 920 and LTO-4 Ultrium 1760 tape drives.	

Options

	HP StorageWorks 1U USB Rack-Mount Kit NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 tape drives.	A8007A
	HP StorageWorks 1U SAS Rack-Mount Kit NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS and LTO-4 Ultrium 1760 SAS tape drive.	AE459A
	HP StorageWorks 3U SCSI Rack-mount kit NOTE: The 3U SCSI Rack-mount Kit can support up to (2) full-height or (4) half-height tape drives and compatible with multiple LVD SCSI tape drives including DAT 40, DAT 72, DAT 160, LTO-1 Ultrium 232, LTO-2 Ultrium 448, LTO-3 Ultrium 920, LTO-3 Ultrium 960, LTO-4 Ultrium 1760 and LTO-4 Ultrium 1840 tape drives.	274338-B22
	NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits: http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html (Worldwide)	
Disk-Based Backup	RDX Removable Disk Backup	
	HP StorageWorks RDX160 External Removable Disk Backup System NOTE: 160GB of Disk Storage	AJ766A
	HP StorageWorks RDX320 External Removable Disk Backup System NOTE: 320GB of Disk Storage	AJ768A
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D120 Backup System NOTE: 2TB of Disk Storage	EH884A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit NOTE: 2TB of Disk Storage	EH924A
	HP StorageWorks D2D130 Backup System NOTE: 3TB of Disk Storage	EH950A
	HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit NOTE: 3TB of Disk Storage.	EH951A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3TB of Disk Storage.	EH952A
	HP StorageWorks D2D4004i Backup System	EH938A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html (Worldwide)	

Options

Tape Autoloaders	**HP StorageWorks DAT Autoloader**	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	HP StorageWorks 1/8 G2 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8G2 LTO-4 Ultrium 1760 SCSI Tape Autoloader	AJ816A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
	HP StorageWorks 1/8 G2 LTO-1 Ultrium 232 Tape Autoloader	AH163A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
	NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions.	
	NOTE: Please reference the Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
Tape Libraries	**HP StorageWorks MSL2024 Tape Library**	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ033A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library	AJ034A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 1 LTO4 Ultrium 1760 SCSI Drive Library	AJ817A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
	HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 Ultrium 448 SCSI Drive Library	AG320A
	HP StorageWorks MSL4048 1 Ultrium 920 SAS Drive Library	AH560A
	HP StorageWorks MSL4048 1 Ultrium 920 SCSI Drive Library	AH171A
	HP StorageWorks MSL4048 1 Ultrium 960 SCSI Drive Library	AG322A
	HP StorageWorks MSL4048 1 Ultrium 960 4GB FC Library	AG324B
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
	HP StorageWorks MSL4048 2 LTO4 Ultrium 1760 SCSI Drive Library	AJ818A
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library	AJ035A
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library	AJ036A
	NOTE: Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	

Options

HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure NOTE: Rack-mountable 10 SFF drive enclosure with single I/O module, redundant hot plug power supplies and hot plug fans. NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)	364430-B21
HP StorageWorks Modular Smart Array 60	HP StorageWorks 60 Modular Smart Array NOTE: Rack-mountable 12-drive (3.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)	418408-B21
HP StorageWorks Modular Smart Array 70	HP StorageWorks 70 Modular Smart Array NOTE: Rack-mountable 25-drive (2.5" 3G SAS/1.5G SATA) 2U enclosure with 3Gb/s SAS host connectivity and redundant power supplies. NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	418800-B21
StorageWorks Options	StorageWorks Fibre Channel HBA NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 - to Fibre Channel HBA	AD167A
	HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
	HP 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
	HP 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
	StorageWorks SCSI HBA	
	HP U320e SCSI Host Bus Adapter NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers	AH627A
	HP StorageWorks FC2243 4Gb PCI-X 2.0 DC HBA	AD168A

Options

Uninterruptible Power Systems - Rack	HP, R1.5kVA UPS, 1U, JPN/TW	AF421A
	HP R1.5 VA 1U UPS NA	AF419A
	HP R1.5 VA 1U UPS INTL	AF418A
	HP R/T2200 2-U ERM	AF412A
USB Options	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21
	USB 1.44-MB External Diskette Drive	DC141B
	USB Floppy Drive	DC361B
	HP USB-P/S2 Mouse	DC369A
	HP Keyboard (USB) standard 2004	DT528A#xxx
	HP USB Internal Cable Kit	451363-B21
HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack NOTE: Requires PS/2 and one USB port on server.	AF604A
	HP Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	HP Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	HP 1x4 Console Switch	AF611A
	HP PS2 Server Console Cable, 6 foot, 2-Pack	AF612A
	HP USB Server Console Cable, 6 foot, 2-Pack NOTE: required for supporting USB peripherals.	AF613A
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm	
HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-D89 DCE Female, 1-pack	AF103A
	Serial Adapter, RJ45-D89 DCE Female, 8-pack	AF110A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm	

Options

Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U9509E
	24-Hour x 7 Day Coverage, 3 Years, Electronic	U9510E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U9508E
	Hardware Services 6-Hour Call to Repair On-Site Service	
	Hardware Installation, Electronic	U9520E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

Memory

HP ProLiant DL160 G5 (all models)

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

1GB (2x512MB) or 2GB (2 x 1GB) depending on model, PC2-5300 Fully Buffered DIMM memory, with Advanced ECC.

Maximum Memory

Up to 32GB memory is available with the optional installation of PC2-5300 Fully Buffered DIMM memory kits.

NOTE: Memory should be installed in pairs and matched for optimum performance.

NOTE: Chart does not represent all possible memory configurations.

Memory	Slot							
	1	2	3	4	5	6	7	8
Standard (1 GB)	512 MB	Empty	512 MB	Empty	Empty	Empty	Empty	Empty
Standard (2 GB)	1 GB	Empty	1 GB	Empty	Empty	Empty	Empty	Empty
Maximum (64GB)	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB	8 GB

Following are memory options available from HP:

1 GB FBD PC2-5300 2 X 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 X 1 GB Kit	397411-B21
4 GB FBD PC2-5300 2 X 2 GB Kit	397413-B21
8 GB FBD PC2-5300 2 X 4 GB Kit	397415-B21
Dual Rank	
4 GB FBD PC2-6400 2 X 2 GB Dual Rank Kit	484060-B21
8 GB FBD PC2-6400 2 x 4 GB Dual Rank Kit	484062-B21
16 GB FBD PC2-5300 2 x 8 GB Dual Rank Kit	413015-B21
64 GB FBD PC2-5300 8 x 8 GB Dual Rank Kit	495604-B21
Low Power	
2 GB FBD PC2-5300 2 X 1 GB Low Power Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Low Power Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Low Power Kit	466440-B21

1-4 Four Non-hot plug SATA or four 3.5" Hot-plug SAS/SATA hard drive bays

A Optional DVD-ROM, or DVD/CD RW

Drive Support

Removable Media

	Quantity Supported	Position Supported	Controller
DVD-ROM	Up to 1	A	Integrated IDE (ATAPI) (optional)
DVD/CD RW	Up to 1	A	Integrated IDE (ATAPI) (optional)

Hard Drives

SATA Non-Hot Plug Midline (MDL) Drives 3.5"

	Quantity Supported	Position Supported	Controller
250GB 1.5G SATA 7.2K 500GB 1.5G SATA 7.2K 750GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller

SATA Non-Hot Plug Enterprise (ENT) Drives 3.5"

	Quantity Supported	Position Supported	Controller
160GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller

SATA Hot Plug Midline (MDL) Drives 3.5"

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller
160GB SATA 7.2K 250GB SATA 7.2K 500GB SATA 7.2K 750GB SATA 7.2K 1TB SATA 7.2K	Up to 4	1-4	HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1 HP Smart Array P400 Controller HP Smart Array P800 Controller

SATA Non-Hot Plug Enterprise (ENT) Drives 3.5"

	Quantity Supported	Position Supported	Controller
160GB 1.5G SATA 7.2K	Up to 4	1-4	HP Embedded SATA RAID Controller

SAS Hot Plug Midline (MDL) Drives 3.5"

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller

Storage

1TB 3G 15K 750 3G 15K	Up to 4	1-4	Embedded SATA with integrated SATA RAID 0,1 HP Smart Array E200/128 BBWC Controller HP Smart Array P400 Controller HP Smart Array E500/256MB Controller HP Smart Array P800 Controller

SAS Hot Plug Enterprise (ENT) Drives 3.5"

NOTE: Installation of the Hot Plug Backplane 1U 2S Kit (445985-B21) is required if ordering third or fourth Hard Drives for Hot Plug models only.

	Quantity Supported	Position Supported	Controller
72GB 3G 15K 146GB 3G 15K 300GB 3G 15K 450GB 3G 15K	Up to 4	1-4	HP SC40Ge 4-Port Internal SAS HBA with RAID 0, 1 HP Smart Array P400 Controller HP Smart Array P800 Controller

External Storage

	Quantity Supported	Position Supported	Controller
Modular Smart Array 20 Family	Up to 2 per SA-6402 Up to 4 per SA-6404	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 30 Family	Up to 2 per SA 6402 Up to 4 per SA 6404	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
Modular Smart Array 50 Enclosure	Up to 2	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller Smart Array 642 Controller
HP StorageWorks Modular Smart Array 60	Up to 8	External	HP Smart Array P800/512 BBWC Controller
HP StorageWorks Modular Smart Array 70	Up to 8	External	HP Smart Array P800/512 BBWC Controller

Storage

Tape and Disk-Based Backup

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/division/10233.html (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/division/10809.html (Worldwide)

NOTE: For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048		HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	External	HP SC44Ge Host Bus Adapter NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A
HP StorageWorks RDX Removable Disk Backup System, External RDX160 RDX320	External	USB 2.0 port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D4004i	External	Embedded Network Controller	N/A

Power Specifications

Operational Input Voltage Range (Vrms)	90Vac to 264Vac full range					
Frequency Range (Nominal) (Hz)	47 Hz to 63 Hz					
Nominal Input Voltage (Vrms)	100	115	200	220	230	240
Max Rated Output Wattage Rating	653.10	653.19	653.08	652.96	653.08	652.96
Nominal Input Current (A rms)	8.55	7.31	4.12	3.77	3.6	3.46
Max Rated Input Wattage Rating (Watts)	855	840.72	824.12	827.5	806.3	805.71
Max. Rated VA (Volt-Amp)	990	990	990	990	990	990
Efficiency (%)	76.39	77.69	79.25	78.91	81	81.04
Power Factor	0.998	0.997	0.983	0.976	0.973	0.969
Leakage Current (mA)	<3.5mA	<3.5mA	<3.5mA	<3.5mA	<3.5mA	<3.5mA
Maximum Inrush Current (A peak)	60A	60A	60A	60A	60A	60A
Maximum Inrush Current Duration (mS)	1mS	1mS	1mS	1mS	1mS	1mS

Power		
ProLiant DL160 G5 Fully Configured	115V/60Hz	220V/50Hz
Fully Loaded System Input Wattage (W)	651	638
Fully Loaded System Input Current (A rms)	5.7	3.0
Fully Loaded System Thermal (BTU- Hr)	2218	2174
Fully Loaded System VA (Volt-Amp)	657	657
System Leakage with all power supplies loaded (mA)	1.58	3.03
System Inrush Current with all power supplies loaded (A)	19	37
Power cord requirements	Nema 5-15P to IEC320-C13	IEC320-C13 to IEC320-C14
NOTE: Power shown is for a fully configured system consisting of (2) CPU, (8) double-sided DIMMs, (2) HDDs, (1) CD-ROM, and (2) PCI cards.		
Power Cord		AF556A

Server Power Cords

One 6' Highline (IEC-IEC) power cord ships standard

NOTE: HP ProLiant DL servers no longer ship standard with NEMA power cords (163719-002) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (227099-001) must be ordered separately.

If customers require a local power cord, they can check the power cord matrix for the appropriate cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.

System Unit	**Dimensions** (H x W x D) (with bezel)	1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.20 cm)	
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	37.00 lb (16.78 kg)
		Minimum (one hard drive, power supply, and processor installed)	30.00 lb (13.69 kg)
	Input Requirements (per power supply)	Rated Line Voltage	90 to 140 VAC 180 to 264 VAC
		Rated Input Current	7.31A at 115VAC 3.6A at 230VAC
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	855W (at 100 VAC), 840.72W (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls - Click on the system of interest. Example: DL160 G5 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	653.10W (at 100 VAC), 653.08W (at 200 VAC)
	System Inlet Temperature	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per every 1000 ft (1.0°C per every 305 m) above sea level to a maximum of 10,000 ft (3050 m), no direct sustained sunlight. Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
		Non-operating	40° to 140° F (-40° to 60° C) Maximum rate of change is 36°F/hr (20°C/hr).
	Relative Humidity (non-condensing)	Operating	10% to 85% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-condensing.
		Non-operating	10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	10,000 ft (3050 m). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 1500 ft/min (457 m/min).

		Non-operating	30,000 ft (9144 m). Maximum allowable altitude change rate is 1500 ft/min (457 m/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (L_{WAd}) and declared average bystander position A-Weighted sound pressure levels (L_{pAm}) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		L_{WAd}	6.86
		L_{pAm}	52.36dBA
		Operating	
		L_{WAd}	6.89
		L_{pAm}	52.60dBA
Non-Hot Plug SATA Hard Drives	160-GB 7.2K 458947-B21	Capacity	160,041 MB
		Height	1.028 in (2.61 cm)
		Width	4.0 in (10.16 cm)
		Depth	5.787 in (147.0 mm)
		Interface	SATA ATA
		Transfer Rate Synchronous (Maximum)	1.5Gb/s
		Seek Time (typical reads, including settling)	Single Track 0.9 ms
			Average 9.0 ms
			Full-Stroke 17.8 ms
			Rotational Speed 7,200 rpm
		Physical Configuration	Bytes/Sector 512
			Logical Blocks 312,581,808
		Operating Temperature	41° to 131° F (5° to 55° C)

Technical Specifications

Embedded NC105i PCIe Gigabit Server Adapter	Network Interface	Integrated 10/100/1000BASE-T Transceiver Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.
	Data Transfer Method	Compliant to x1 PCIe Specification
	Network Transfer Rate	10Base-T (Half-Duplex) 10 Mb/s 10Base-T (Full-Duplex) 20 Mb/s 100Base-TX (Half-Duplex) 100 Mb/s 100Base-TX (Full-Duplex) 200 Mb/s 1000Base-TX (Half and Full-Duplex) 2000Mb/s
	Connector	RJ-45 connector
	Cable Support	Performs all the physical layer functions for 10BASE-T, 100BASE-T, and 1000BASE-T Ethemet on standard Category 5 UTP

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.